

What is claimed is:

1. A RAID apparatus comprising:
  - a plurality of physical disk units for forming same logical volumes; and
  - 5 a disk controller for accessing any physical disk unit which forms a designated logical volume to thereby access said designated logical volume,
    - 10 said disk controller including a memory for storing a number of operations, requested to each physical disk unit, for each physical disk unit, and
    - control means for accessing one of said plurality of physical disk units which form the designed logical volume, in accordance with said number of operations.

15 2. The RAID apparatus according to claim 1, wherein said control means compares said numbers of operations of a plurality of physical disk units which form said designated logical volumes with each other, and selects that physical disk unit which has a minimum number of 20 operations.

3. The RAID apparatus according to claim 1, wherein said control means includes:

- 25 a channel adapter circuit for performing interface control with a high-rank apparatus;
- a device adapter circuit for accessing said physical disk units in accordance with a requested operation; and

a resource manager circuit for determining a physical disk unit in accordance with said number of operations in said memory in response to a transfer request from said channel adapter circuit, and requesting said device  
5 adapter circuit to perform an operation for accessing said determined physical disk unit.

4. The RAID apparatus according to claim 3, wherein  
said resource manager circuit increments a number of  
10 operations of said determined physical disk unit in  
accordance with a request on said operation and decre-  
ments a number of operations of a physical disk unit  
whose operation has been completed, in accordance with an  
end of said operation of said device adapter circuit.

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5. The RAID apparatus according to claim 3, wherein  
said memory stores status information indicating statuses  
of said physical disk units; and  
said resource manager circuit refers to said status  
20 information to determine whether those physical disk  
units which form said designated logical volume are  
normal and selecting a normal physical disk unit.

6. The RAID apparatus according to claim 3, wherein  
25 for each logical volume, said memory stores information  
of a plurality of physical disk units which hold said  
logical volume; and

said resource manager circuit refers to said memory to select a physical disk unit on which said logical volume is allocated.

5        7. An access control method for a RAID apparatus comprising a plurality of physical disk units for forming same logical volumes, and a disk controller for accessing any physical disk unit which forms a designated logical volume to thereby access said designated logical volume,  
10      said method comprising the steps of:

          determining a plurality of physical disk units which form a designed logical volume; and

          selecting one of said determined physical disk units in accordance with a number of operations requested to  
15      said physical disk units.

8. The access control method according to claim 7, wherein said selecting step compares said numbers of operations of a plurality of physical disk units which form said designated logical volumes with each other, and accesses that physical disk unit which has a minimum number of operations.  
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9. The access control method according to claim 7, 25 wherein said determining step determines said plurality of physical disk units in response to a transfer request from a high-rank apparatus; and

said selecting step includes a step of requesting an operation for accessing said physical disk unit determined in accordance with said number of operations and a step of accessing said physical disk unit in accordance 5 with said requested operation.

10. The access control method according to claim 9, further comprising the steps of:

incrementing a number of operations of said determined physical disk unit, stored in a memory, in accordance with a request on said operation; and

decrementing a number of operations of a physical disk unit whose operation has been completed, in accordance with an end of said operation of said physical disk 15 unit.

11. The access control method according to claim 7, wherein said selecting step includes:

a step of referring to status information to determine indicative of statuses of said physical disk units, stored in a memory, to determine whether those physical disk units which form said designated logical volume are normal; and

a step of selecting a normal physical disk unit.

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12. The access control method according to claim 7, wherein said determining step refers to information of a

plurality of physical disk units which form said logical volume, stored in a memory, to determine physical disk units forming said logical volume.